

## **Laboratory Write-Up Form**

All labs must be written in third person.

**Name:**

**Date:**

**Title** \_\_\_\_\_

### **Introduction/Background**

The introduction should provide an explanation of the background and theory needed for the experiment so that the reader is able to understand your experiment.

### **Purpose:**

This section describes the motivation for the experiment. What are you trying to accomplish? What is the reason for doing the experiment or what is there to be learned from doing the experiment? State the specific problem being investigated in the lab. This must be written in the form of a question.

### **Hypothesis:**

This is a prediction/possible solution of what the outcome of the experiment will prove. It is an educated guess of what “you think” will be the final outcome of the experiment. The hypothesis is written before you perform the experiment. Remember, there is no right or wrong answer. It is strictly what “you think” and “why you think this.” Make sure the statement is written in a complete sentence written as an “if...then...because” statement.

### **Materials:**

This section provides a list of equipment and supplies that will be needed to complete the lab procedure.

### **Procedure:**

What is done to perform the experiment? This is clearly stated in a step-by-step approach, with each numbered step of the procedure beginning at the left side of the page. This needs to be specific enough that someone who has never done this lab before will be able to follow your procedure and repeat the lab successfully.

Identify any precautions that may be needed to be followed in completing the experiment.

What are your variables? Identify the variables in the experiment.

- **Independent Variable:** This is the only factor that is being changed in the experiment.
- **Dependent Variable:** This is the measurement that is being taken in the experiment. The variable that becomes altered as a result of the change that was made in the independent variable.
- **Control Group:** This is the group in the experiment that is the basis for comparison (the “normal conditions”).
- **Experimental Group:** This is the group in the experiment that is being changed according to what the independent variable is.
- **Variables to be controlled:** These are the factors that are kept the same between the experimental and control groups so that there is only one factor being varied in the experiment.

### **Results/Data:**

In this section you should describe the important qualitative and quantitative observations.

**Qualitative:** information gathered through senses, such as, smell, touch, hear, etc.

**Quantitative:** information gathered due to precise measurements, such as, height, width, mass, volume, etc.

This is the record of what happened. Make sure to include your data table, observations, drawings, graphs, mathematical analysis, and answers to questions. All members of the lab group should record their data individually.

\*\*All charts, tables, and graphs are labeled with titles and units.

(From the data, a reader should be able to know the procedure that was being followed and the outcome of the experiment).

### **Discussion:**

This is a written summary of what was actually learned from doing the experiment. The conclusion will either support or reject your hypothesis. This is an explanation of **why or how** the experiment turned out as it did. You should include:

Restate your hypothesis and your reasoning for this prediction. In your own words describe the purpose and procedure of this experiment.

Was your hypothesis supported or not supported by the lab data? Describe the outcome of the experiment and how it relates to your hypothesis. Perform a strong analysis of the results. What evidence do you have to support your claim? Use specific data from your data table (s) and graph (s) in your explanation (you answer all the **WHYS and HOWS**). From your analysis, point out certain trends or pattern that support your conclusion. Explain why you think you obtained the results that you did, using your knowledge of the current topic being studied. This is also the place to evaluate errors that may have been made and how to avoid them in the future experiment.

### **Error Analysis/Improvements:**

- 1) Describe all possible forms of experimental error that occurred. Discuss how this experimental error may have impacted your results. “There was no error in my experiment” is not a suitable answer. “Incorrect measurements” is not an acceptable source of error...why weren't you careful when taking data???
- 2) Explain what you would do next time to improve the experiment and/or avoid the errors that resulted. Give reasons why these changes would be important. “Nothing” is not a suitable answer.

### **Works Consulted:**

If you used any additional resources (besides your text book or notes in class) please be sure to include a citation in your report, as well as, a works cited page in proper MLA format.